Name Chemistry 11

TA 2021-2022

LG #20: Organic Chemistry

BIG IDEA: Organic chemistry and its applications have significant implications for human health, society, and the environment.

Fundamental Knowledge (I know):

- Organic compounds - names, structures, geometry
- Applications of organic chemistry - First Peoples traditional practices (e.g., medicines), pharmaceuticals, petrochemicals, polymers, cosmetics, metabolism, agriculture, food, biotechnology

Curricular Competencies (I can)

	Proficiency Scale Teacher and Student self assessment (Circle one)	**Evidence (How do you know?)**
Construct, analyze models, and use knowledge of scientific concepts to draw conclusions that are consistent with evidence.	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	
Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest. Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information.	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	

Student Signature: **Teacher Signature:** **Date:**

Instructions: To help guide your learning, make your way through the activities in Option 1, Option 2, or Option 3. You may "mix and match" between the different Option columns.

TOPIC	OPTION 1	OPTION 2	OPTION 3
Organic Chemistry *[Chapter 24: Pages 1002-1028]* *Note that Specific Reactions & Optical Isomerism are NOT applicable*.	**Create** a glossary of the "key words" in Chapter 24 (p.1002-1028). **Identify** several major sources of organic chemicals and uses of organic molecules (**present** using your choice of graphical organizer: idea web, concept map, etc.) **Read** Pages 1002 – 1015 and **complete "Review Questions"**: 24.1-24.6 on pgs. 1029 – 1030. **Complete *"Example: Practice Exercises"*** 24.1, 24.2 & 24.3 on pgs. 1006, 1008 and 1009. **Complete** worksheet #1: Alkanes **Complete** worksheet #2: Alkenes & Alkynes **Read** handout "*Exploring the uses of traditional medicines: Knowledge shared by First Peoples*". **Read** Page 1017. **Draw** a benzene ring and **explain** how the term "resonance" applies. **Read** Pages 1020 – 1025 and **complete** worksheet #3: Functional Groups	**Create** a digital presentation that explains how to name and draw structures for various types of hydrocarbons up to C-10 in length. **Identify** several major sources of organic chemicals and uses of organic molecules (**present** using your choice of graphical organizer: idea web, concept map, etc.) **Read** Pages 1002 – 1015 and **complete "Review Questions"**: 24.1-24.6 on pgs. 1029 – 1030. **Complete *"Example: Practice Exercises"*** 24.1, 24.2 & 24.3 on pgs. 1006, 1008 and 1009. **Complete** worksheet #1: Alkanes **Complete** worksheet #2: Alkenes & Alkynes **Read** handout "*Exploring the uses of traditional medicines: Knowledge shared by First Peoples*" and **research** an additional two (2) local indigenous plants used for medicinal purposes. **Read** Page 1017. **Draw** a benzene ring and **explain** how the term "resonance" applies. **Read** Pages 1020 – 1025 and **complete** worksheet #3: Functional Groups **Create** a functional groups Infographic project (see details on page 3 of LG).	**Choose your own adventure!** Pick up a planning sheet from the Science Kiosk. Create a plan! Make sure you read through the first page of this LG, as you will need to design ways to learn/practice and show your understanding of the topic(s) and skill(s) (competencies.) You will need to have a teacher approve your plan before beginning the LG.
Properties of Polymers *[Chapter 25.1: Condensation Reaction (Esterification & Polyesters) only]*	**Read** pgs.1044 – 1045 and complete **"Review Questions":** 25.1, 25.2 & **"Problems"** 25.9.	**Read** pgs.1044 – 1045 and complete **"Review Questions":** 25.1, 25.2 & **"Problems"** 25.9. **Research** Esterification and Saponification and their uses.	
Chapter Review	Complete "***Problems***": 24.14, 24.16, 24.26, 24.28, 24.36, 24.38, 24.42, 24.60 on pgs. 1030-1032.		
Lab*	Lab 15A: Making Models of Some Carbon Compounds. **Do a lab write up for each lab.* Lab 15B: Preparation of Esters.		
Self Assessment	Reflect on the Fundamental Knowledge and Curricular Competencies. Use the rubric and make goals to improve for your next learning guide.		
Interview / Quiz	See your teacher for an interview or to have a quiz slip signed for the test center. Bring your work and staple it to your quiz when complete.		

Option 2: Infographic Project

An **infographic** is a collection of imagery and minimal text that gives an easy-to-understand overview of a topic.

Check out the website, **Compound Interest**, to see some awesome infographics that present some interesting topics in organic chemistry.

https://www.compoundchem.com/infographics/

https://compoundchem.tumblr.com/

Instructions:

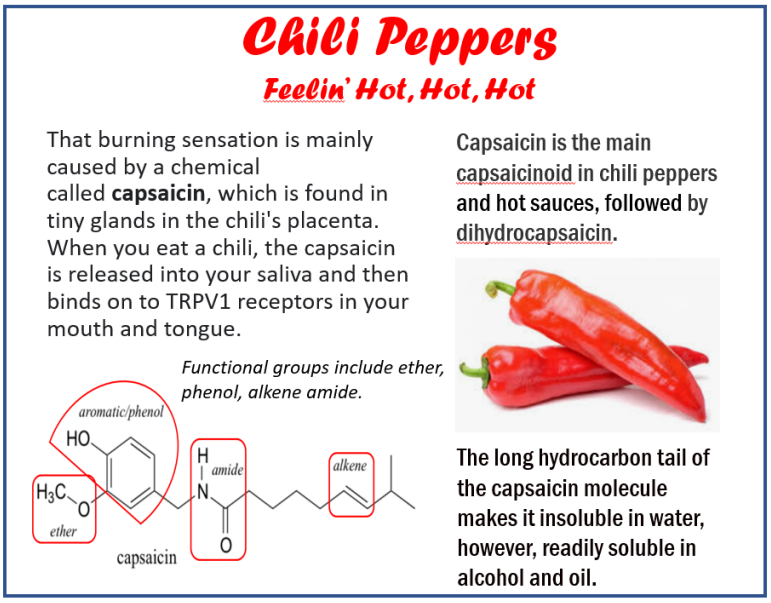
- Use the internet to research something from everyday life that has organic compounds. Then make an infographic about it.

Your infographic should...

- be a maximum of one page
- have a title that tells you what the subject is
- have a picture of the subject
- have at least 1 structure of an organic compound that is found in the subject
- describe the **main functional group(s)** of that organic compound
- have at least 1 interesting fact about the chemistry of the subject
- experiment with adding color

Note: *It can be hardcopy or digital*

Example:



Organic Chemistry

Learning Expectations:

1. Carbon is the backbone of all organic molecules; identify several major sources of organic chemicals and uses of organic molecules.

2. Using molecular models compare the types of bonds formed between carbon atoms and those of other elements such as chlorine, oxygen, and nitrogen. Include for the carbon-carbon bonds the rotational ability and geometry (*cis* and *trans* isomers).

3. Classify hydrocarbon chains or functional groups as one or more of the following: alkane, alkene, alkyne, cyclic, aromatic, saturated, unsaturated, methyl, ethyl, fluoro, chloro, bromo, iodo, cis or trans isomers, alcohol, aldehyde, ketone, ester, organic acid, ester, amine, and/or amide.

4. Name and draw structures for hydrocarbons up to C-10 in length.

5. Draw a benzene ring and explain how the term “resonance” applies.

6. Conduct lab experiments in a safe methodical manner.